

The diagram illustrates a Client-Server Network Architecture. At the top, six desktop computers are labeled "Client Computers". These are connected to a central horizontal line representing the "Local Area Network and switch". Below this switch, the network splits to connect to two server units labeled "Computer elements". These two server units are connected to a "Common File System", which is represented by two stacked cylinders at the bottom of the diagram.

Figure 1: Current Architecture Network-Attached Storage system With Tightly-coupled Computer Elements

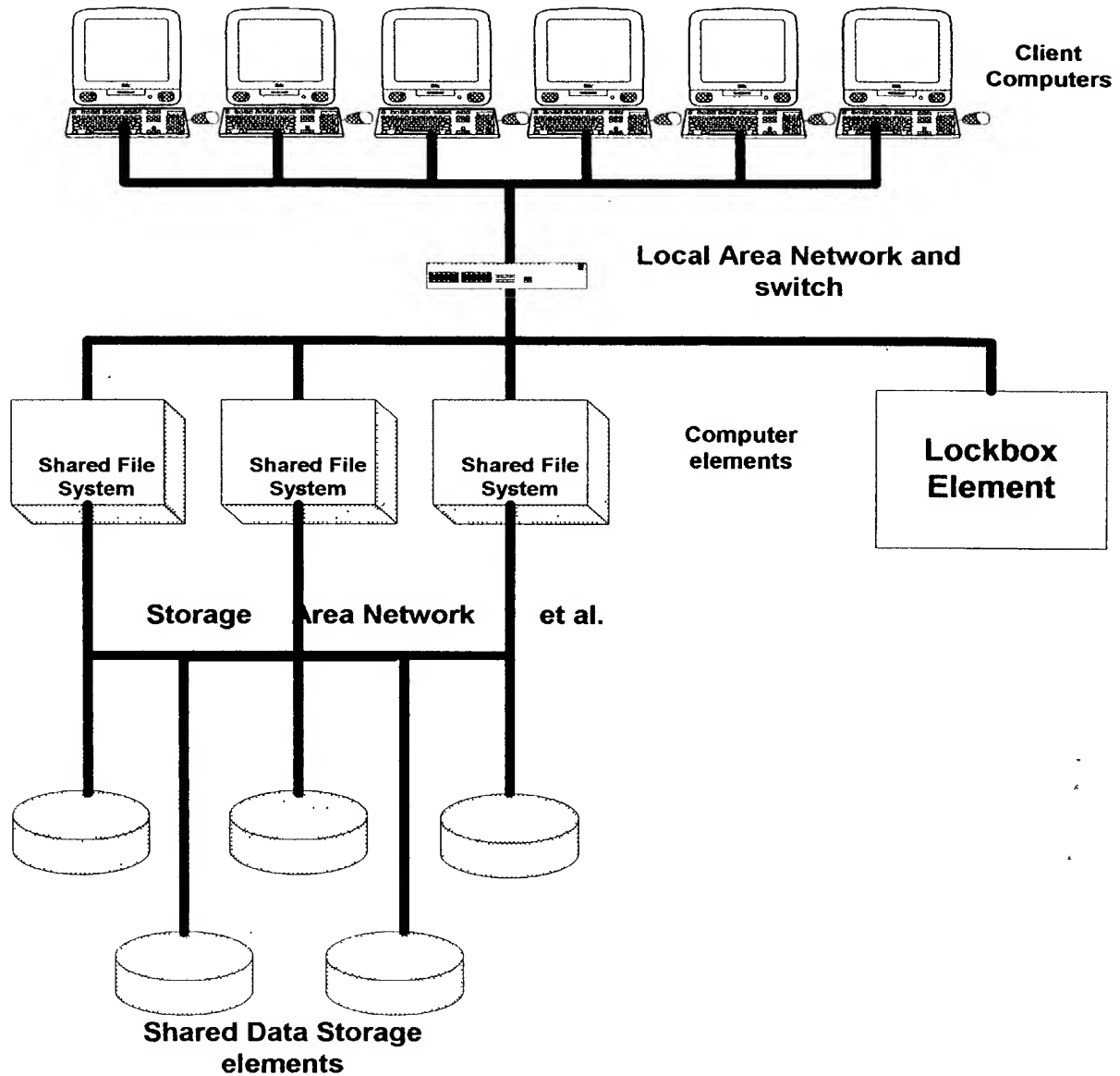


Figure 2: Current Architecture Network-Attached Storage system With Loosely-coupled Computer Elements

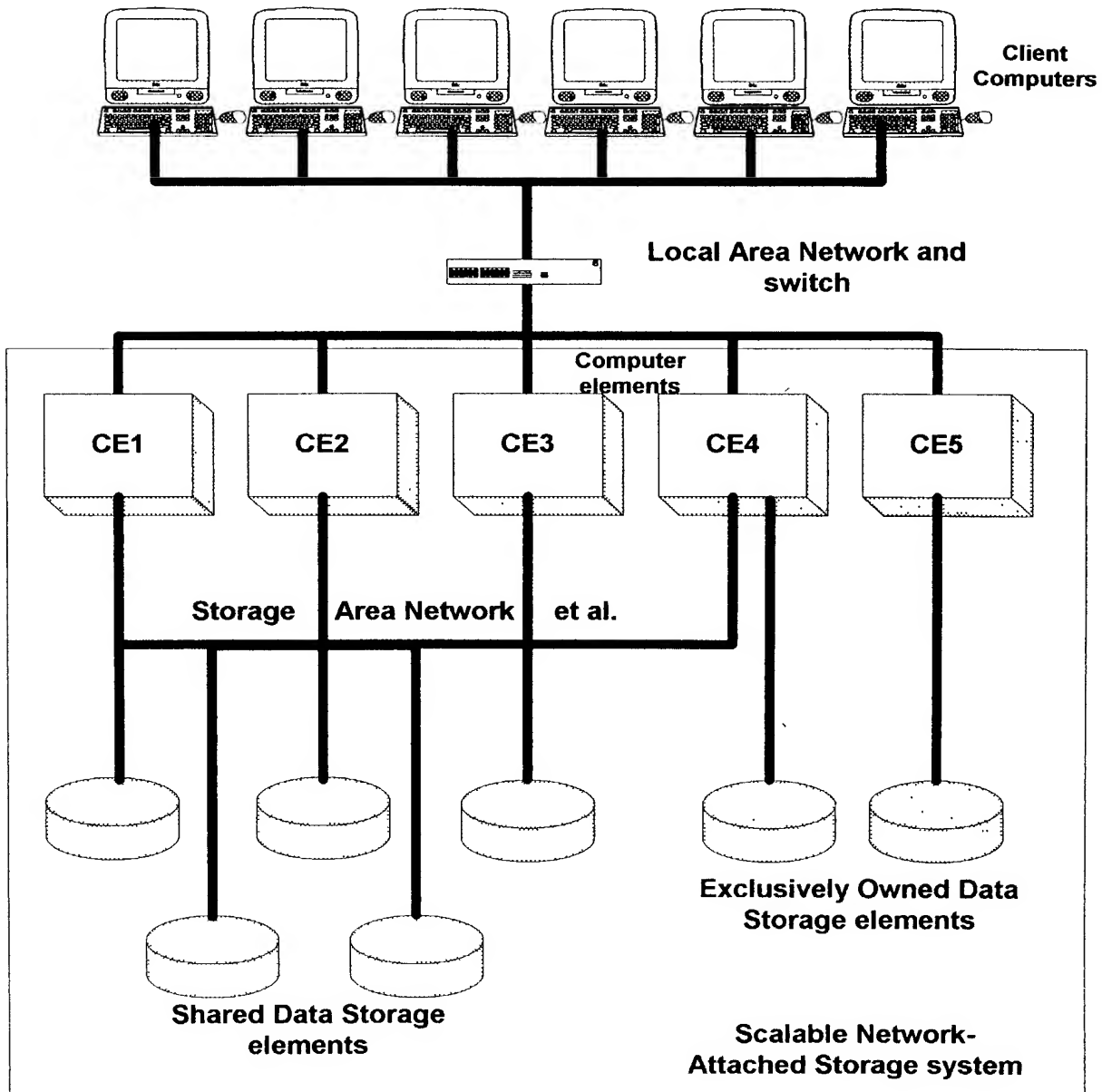
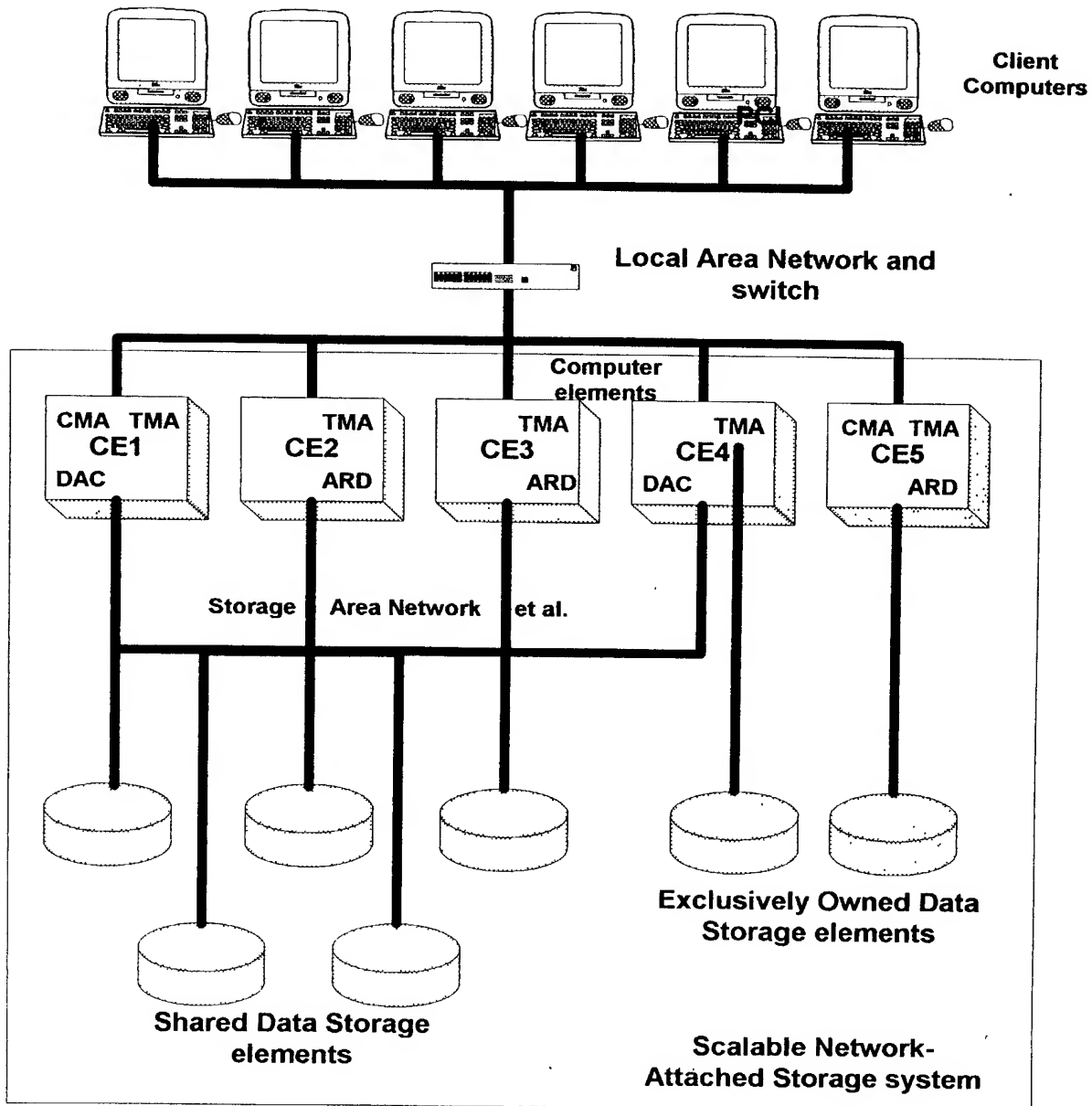


Figure 3: Scalable Network-Attached Storage System Hardware Elements



**Figure 4: Scalable Network-Attached Storage System
Software Elements Shown on Hardware Elements**

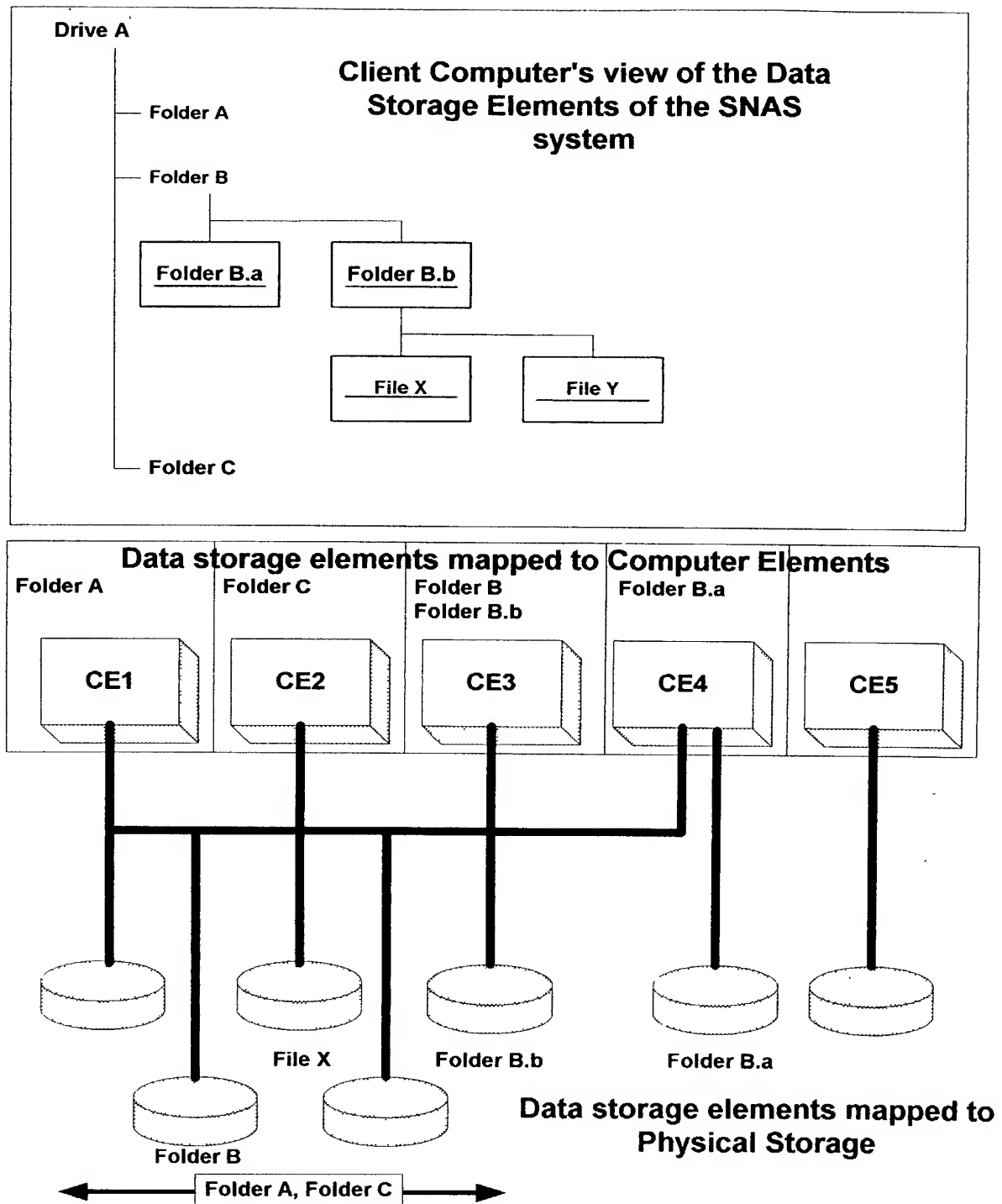


Figure 5: Mapping of Data Storage Elements

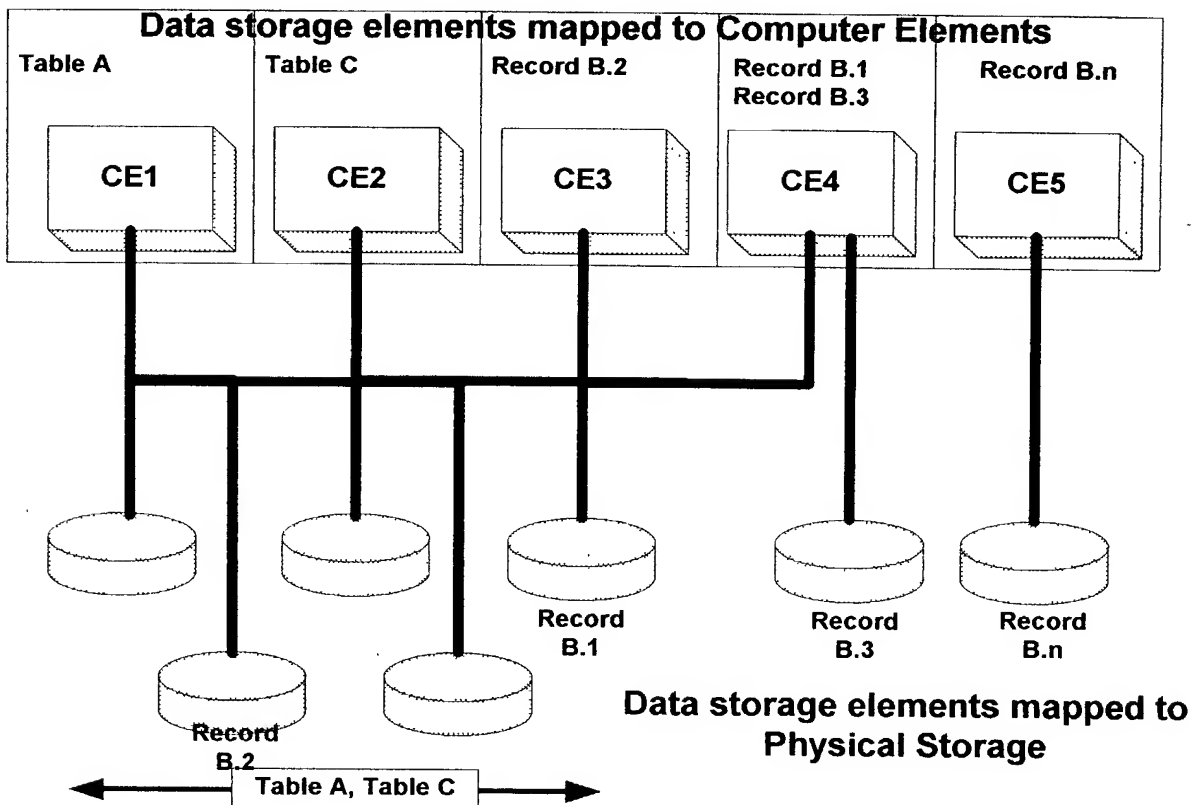
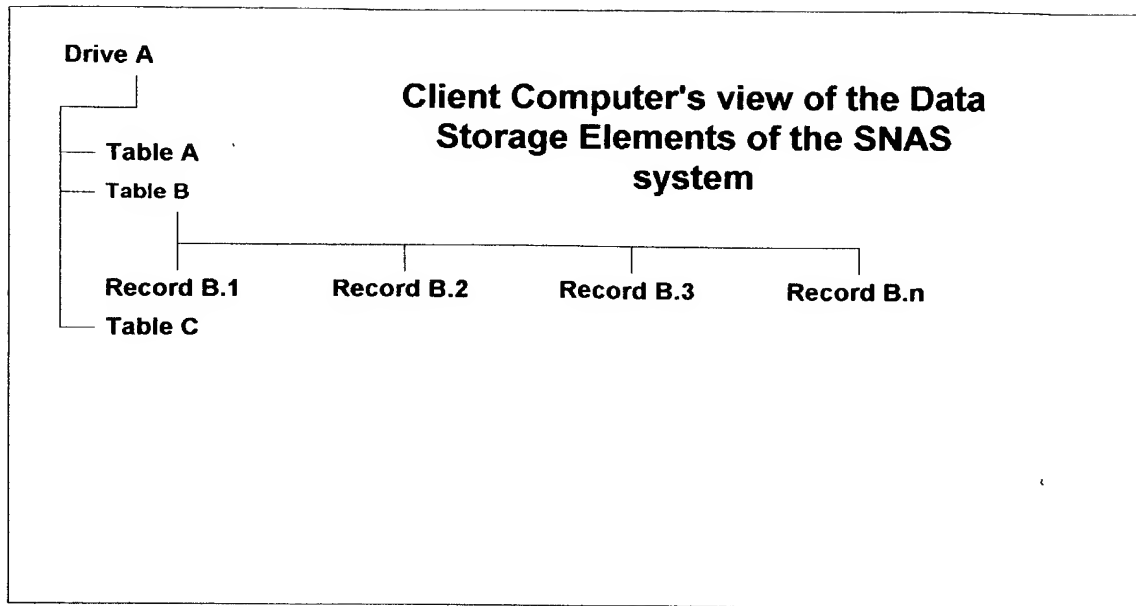


Figure 6: Mapping of Data Storage Elements in a Database-type System

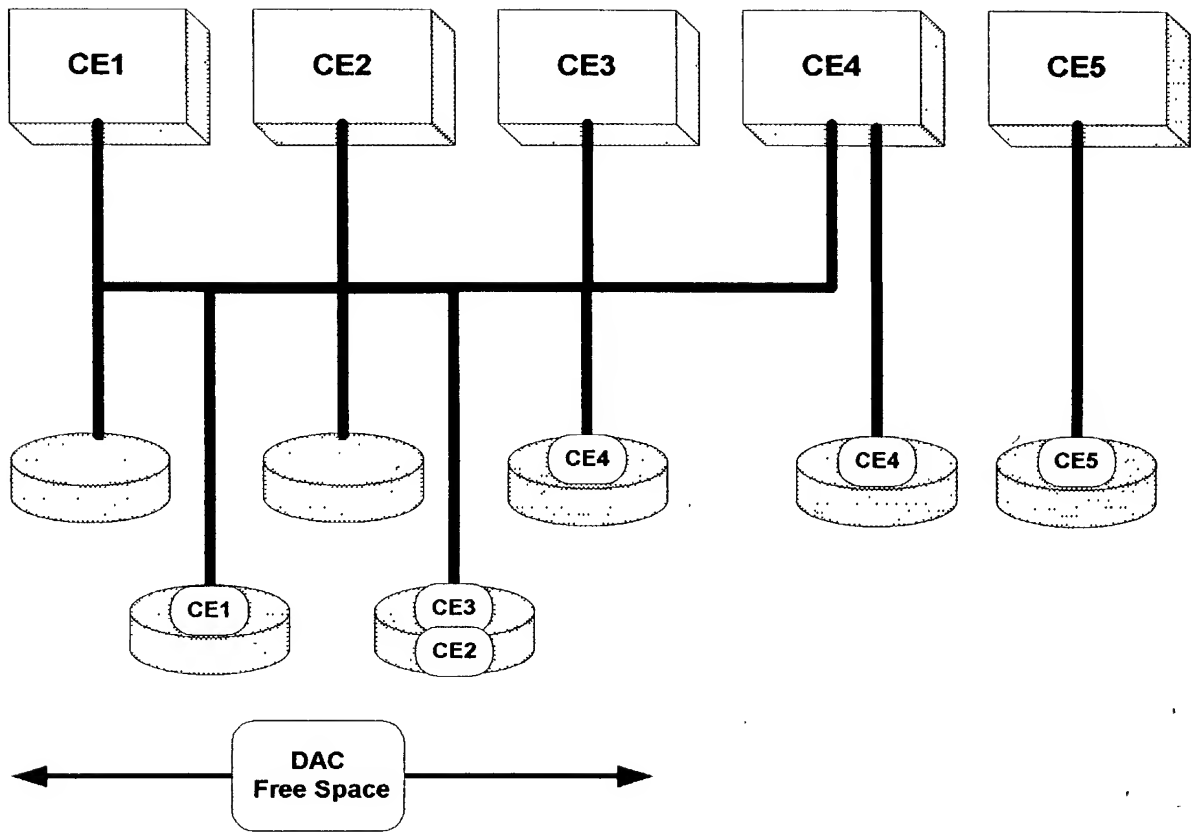


Figure 7: Two-Tier Mapping of Free Space onto Data Storage Elements

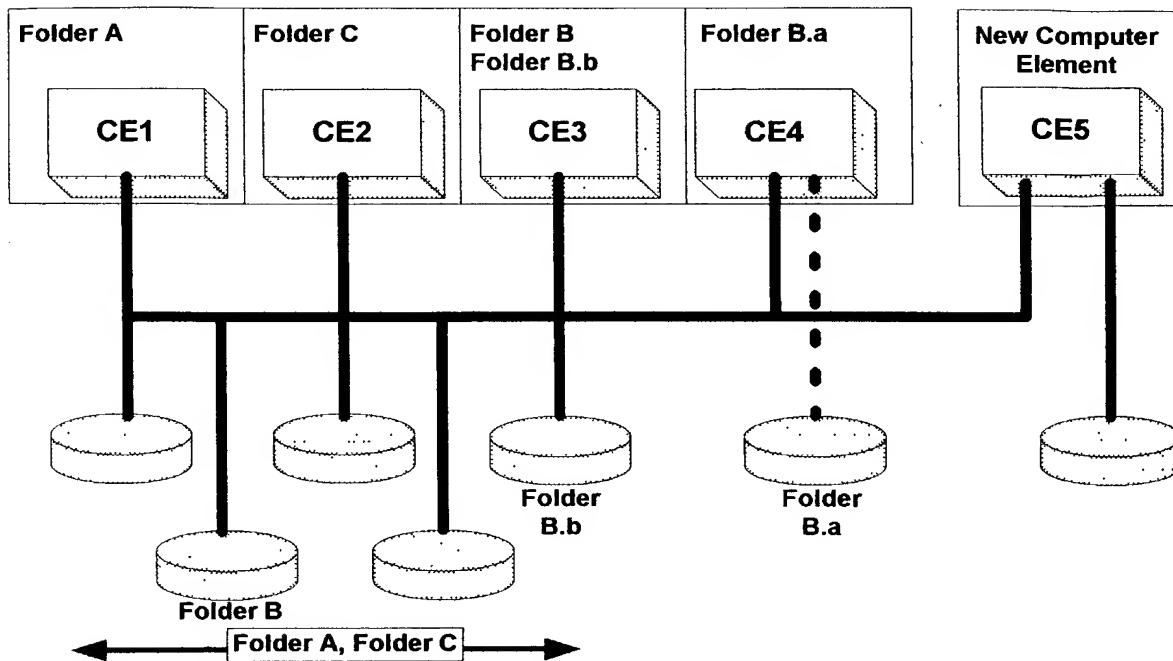


Fig 8a: Map just as New Computer Element is added

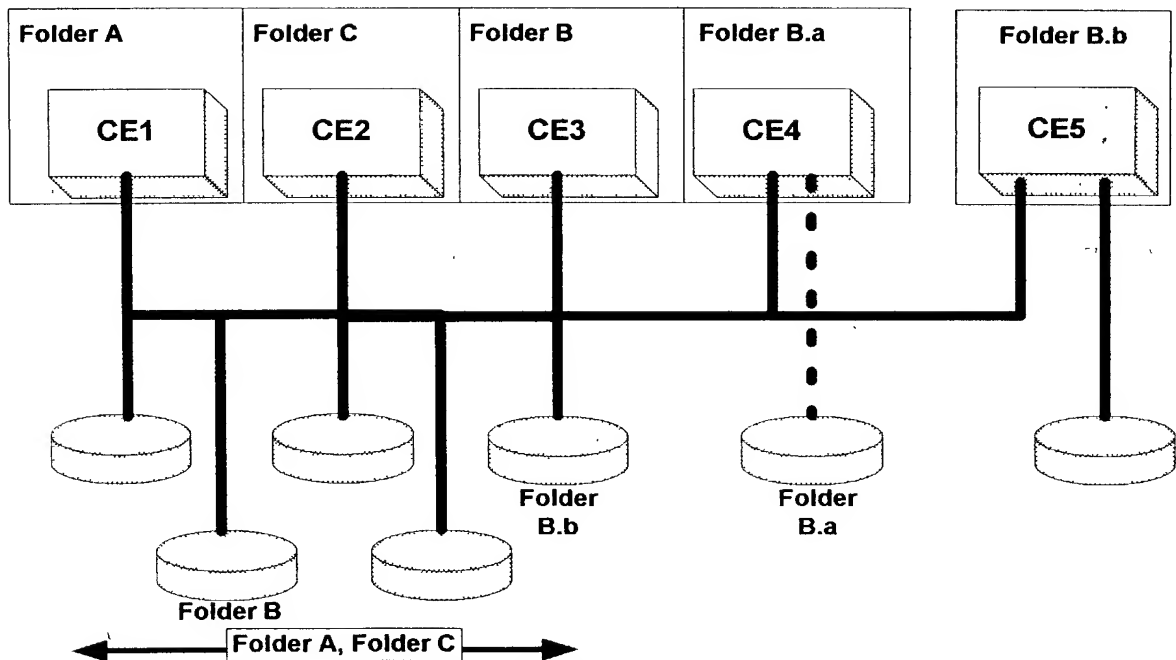


Fig 8b: Map After DAC has Re-allocated

Figure 8: Scaling of Computer Elements

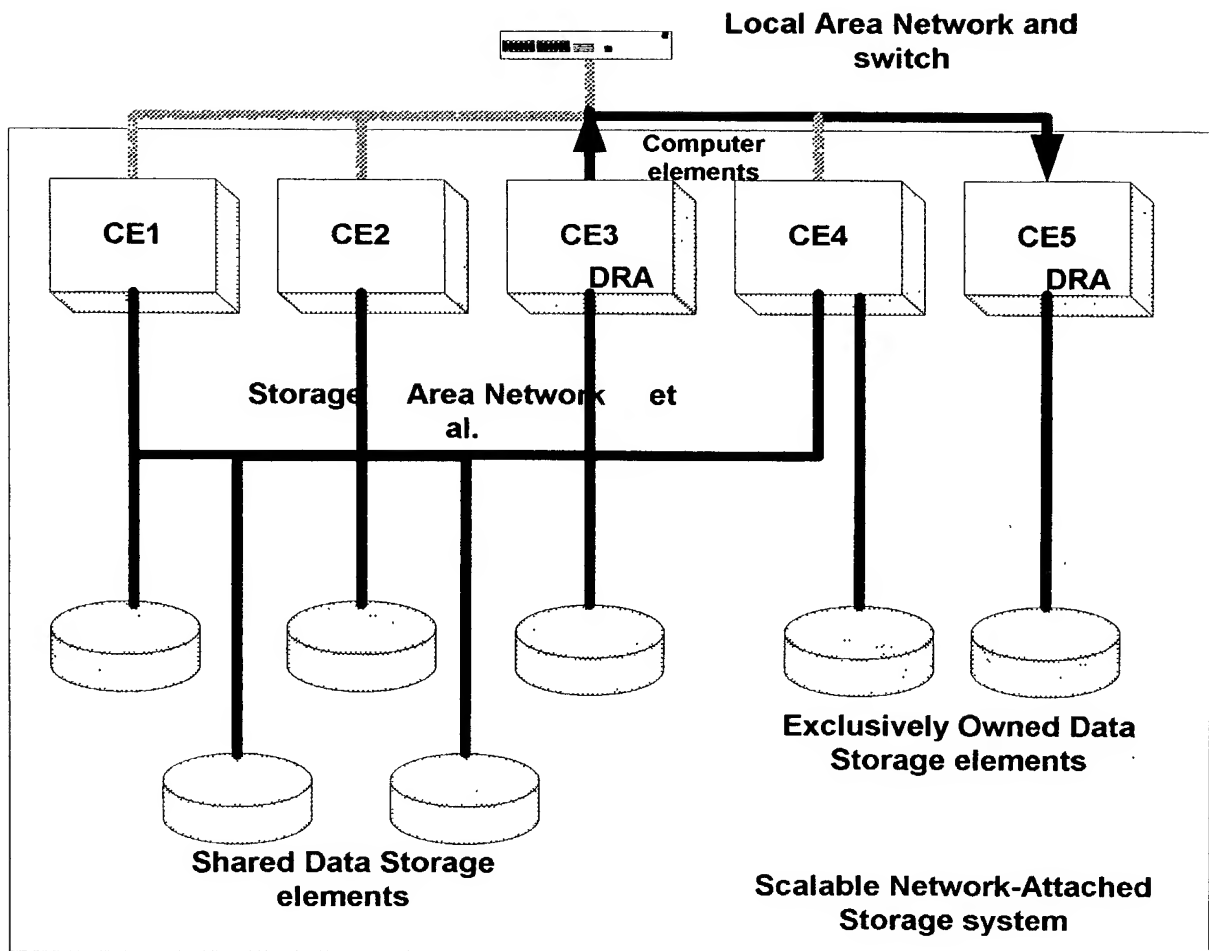


Figure 10: Local Replication

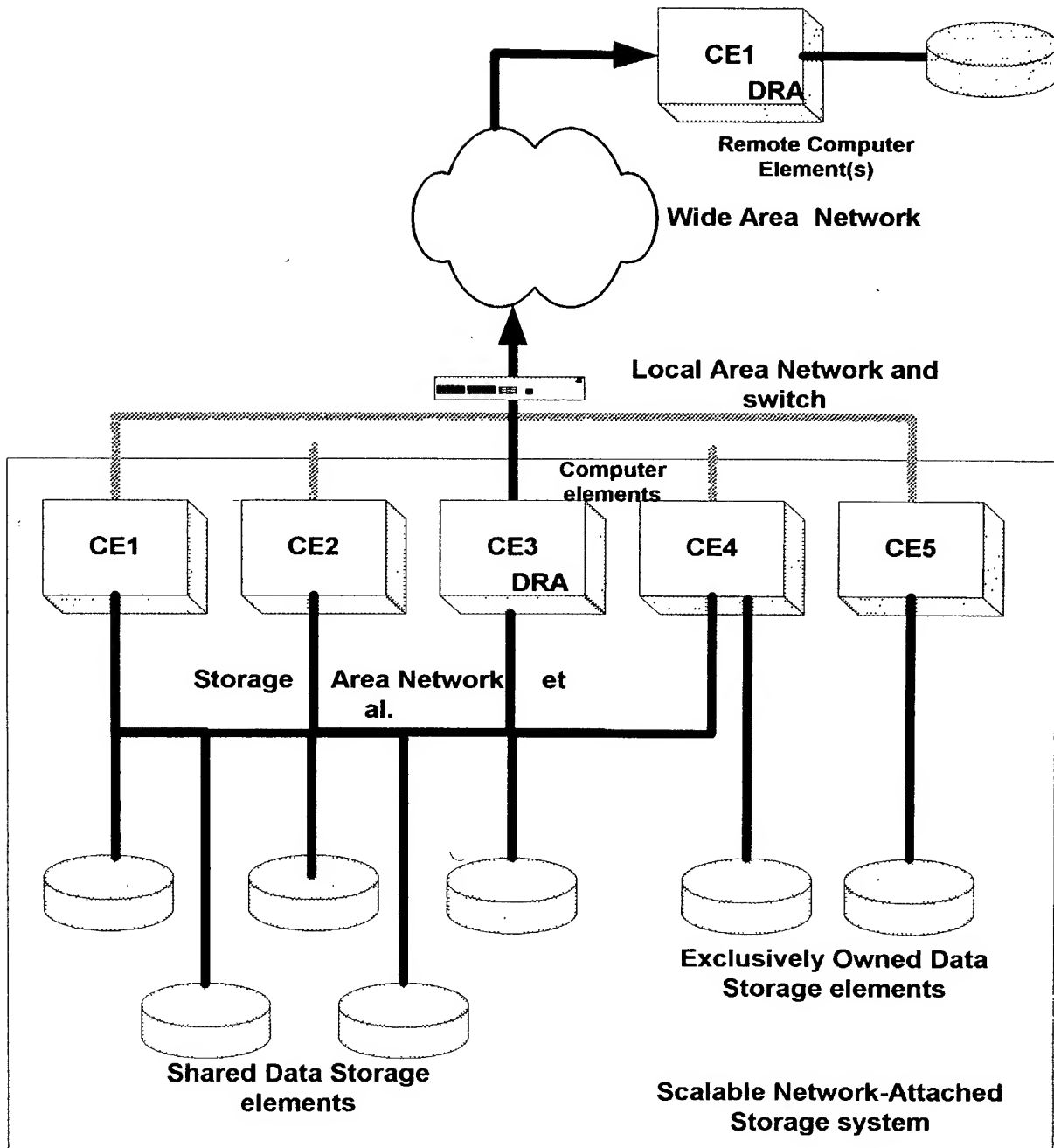


Figure 11: Remote Replication

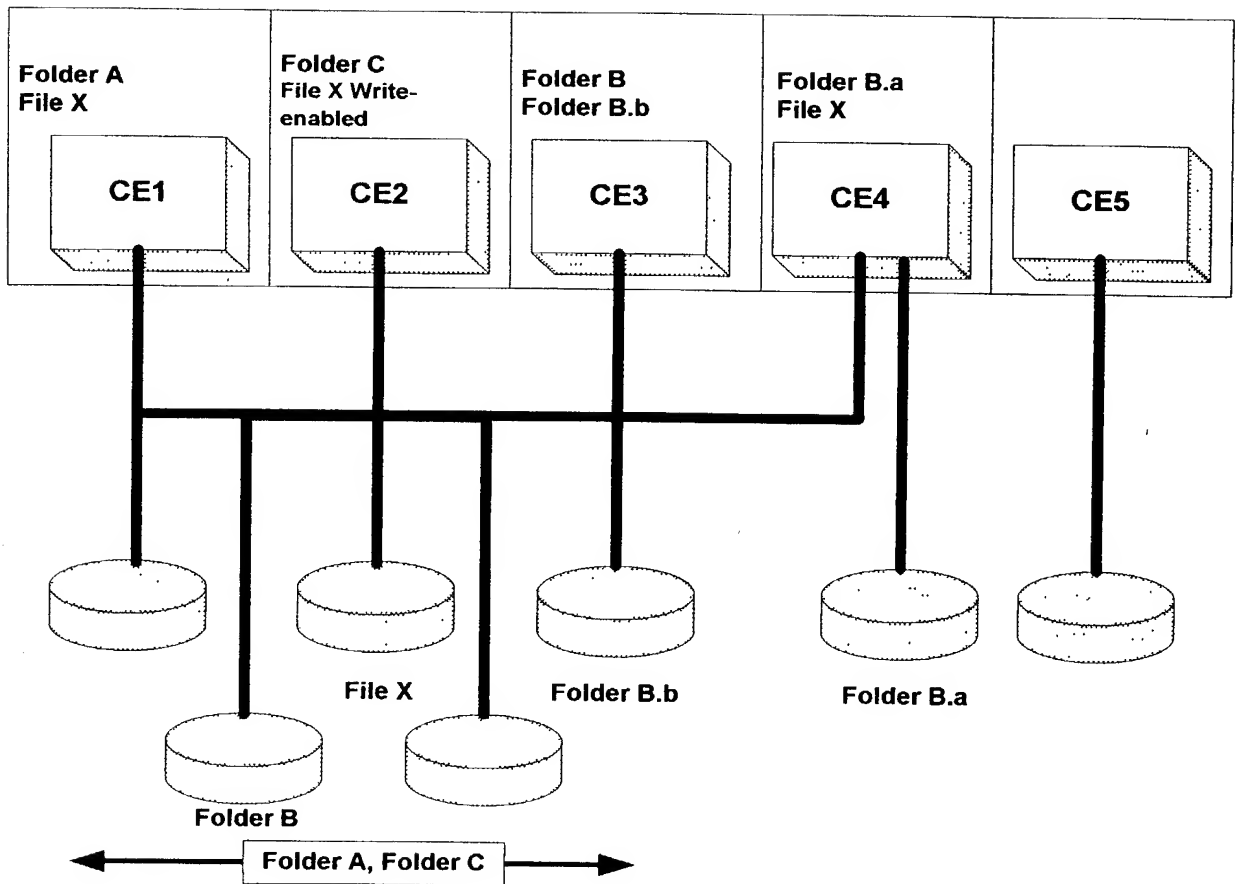


Figure 12: Access Replication

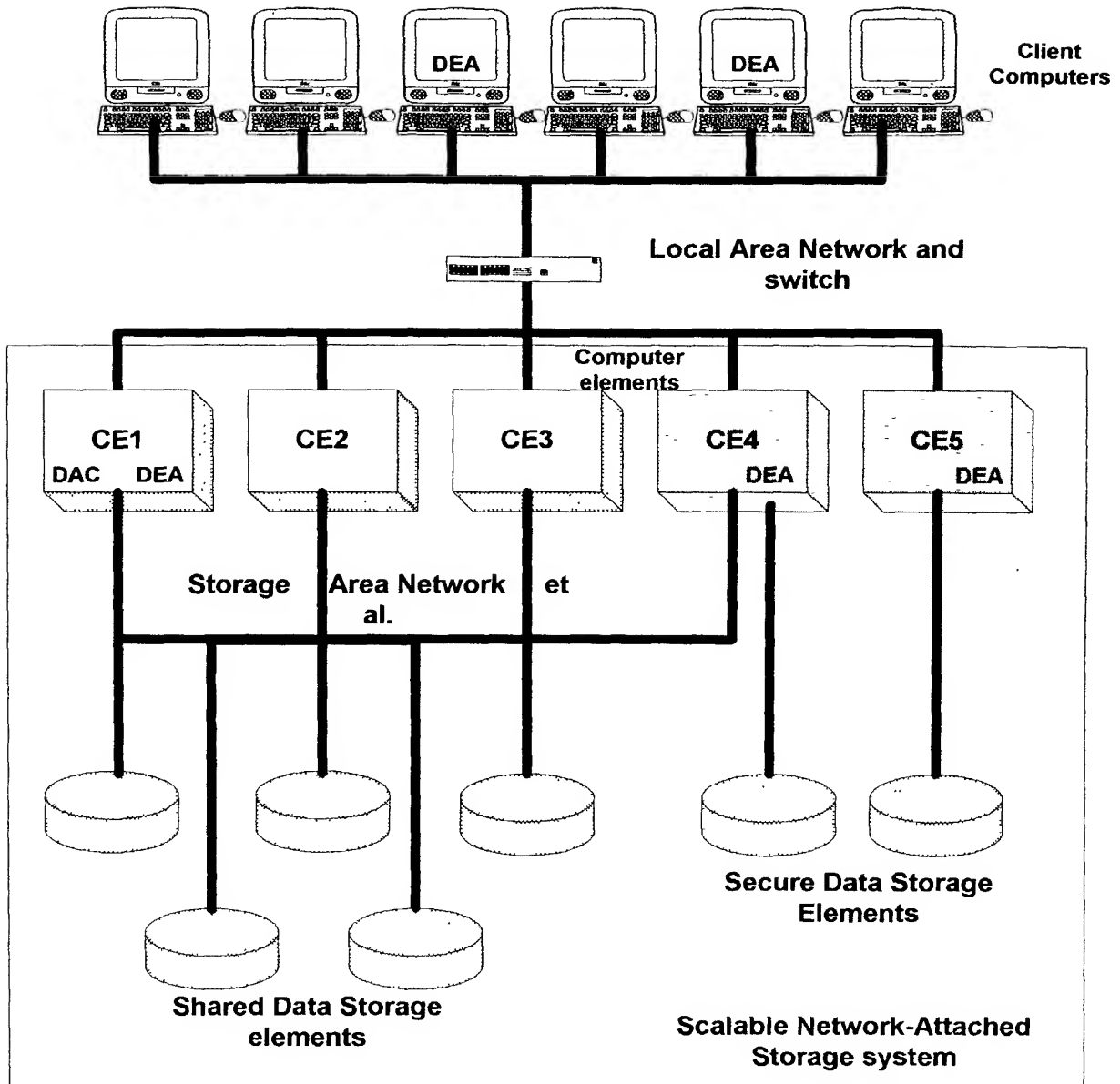


Figure 13: Secure-SNAS System

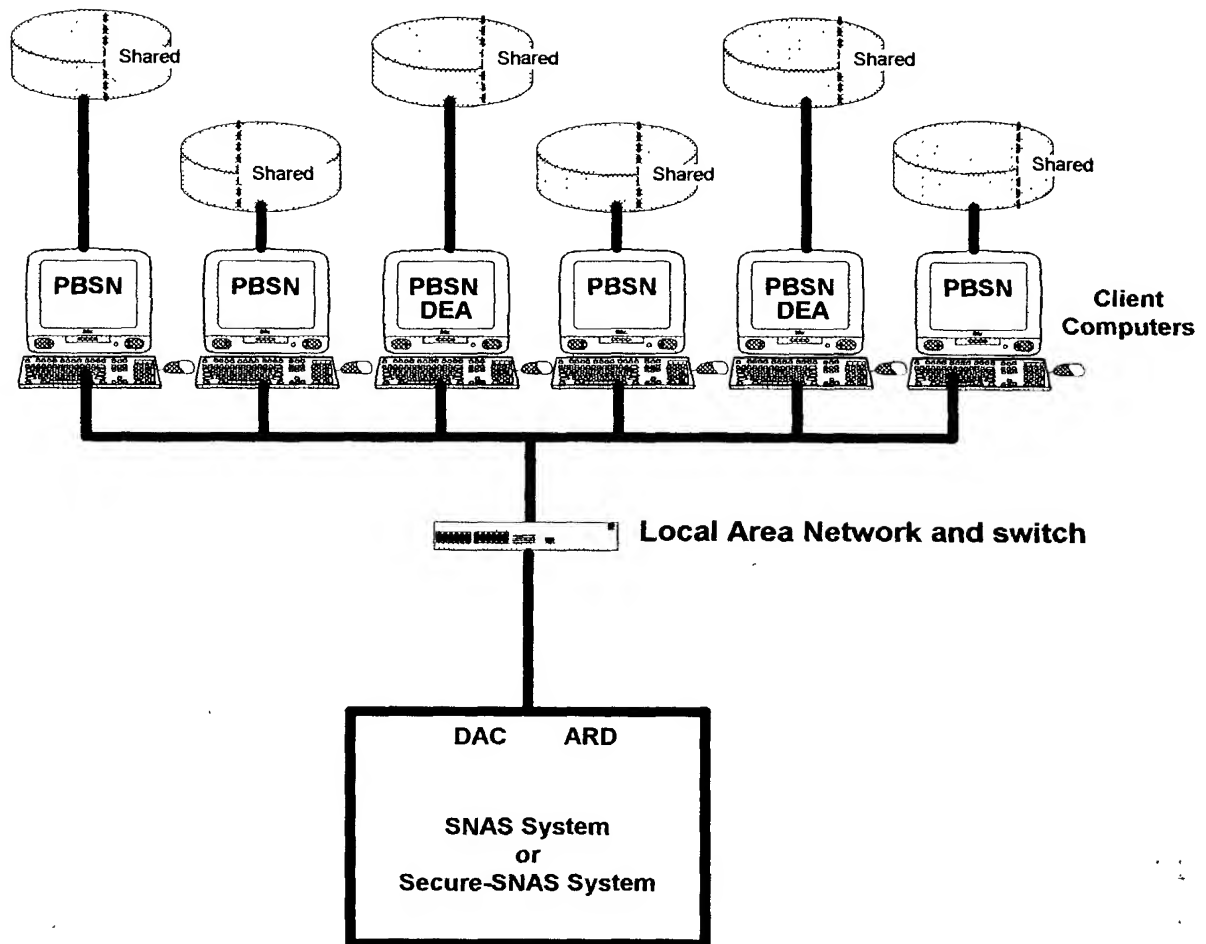


Figure 14: Peer-Based Storage Network

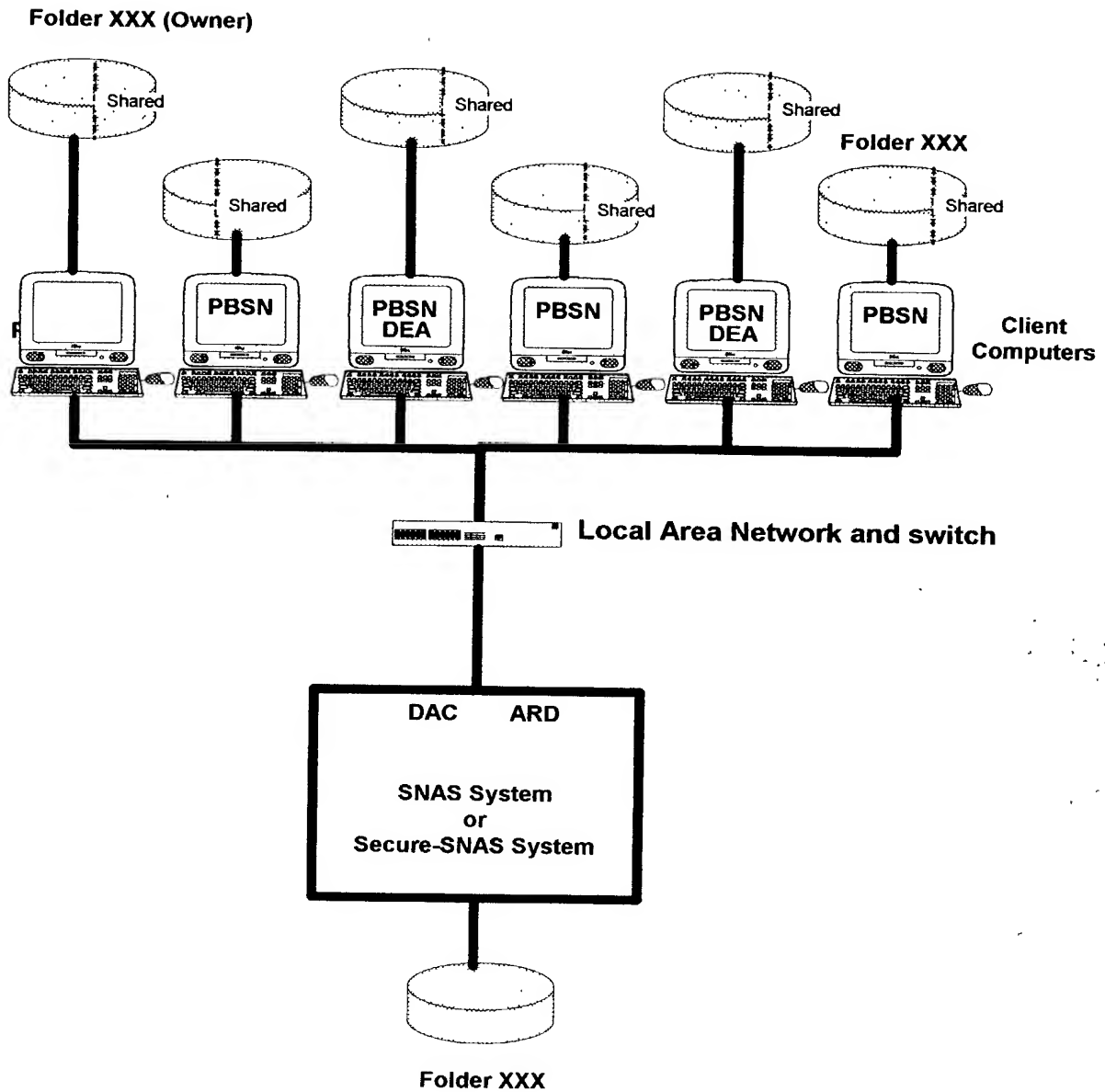


Figure 15: High Availability User Network Based on Peer-Based Storage Network

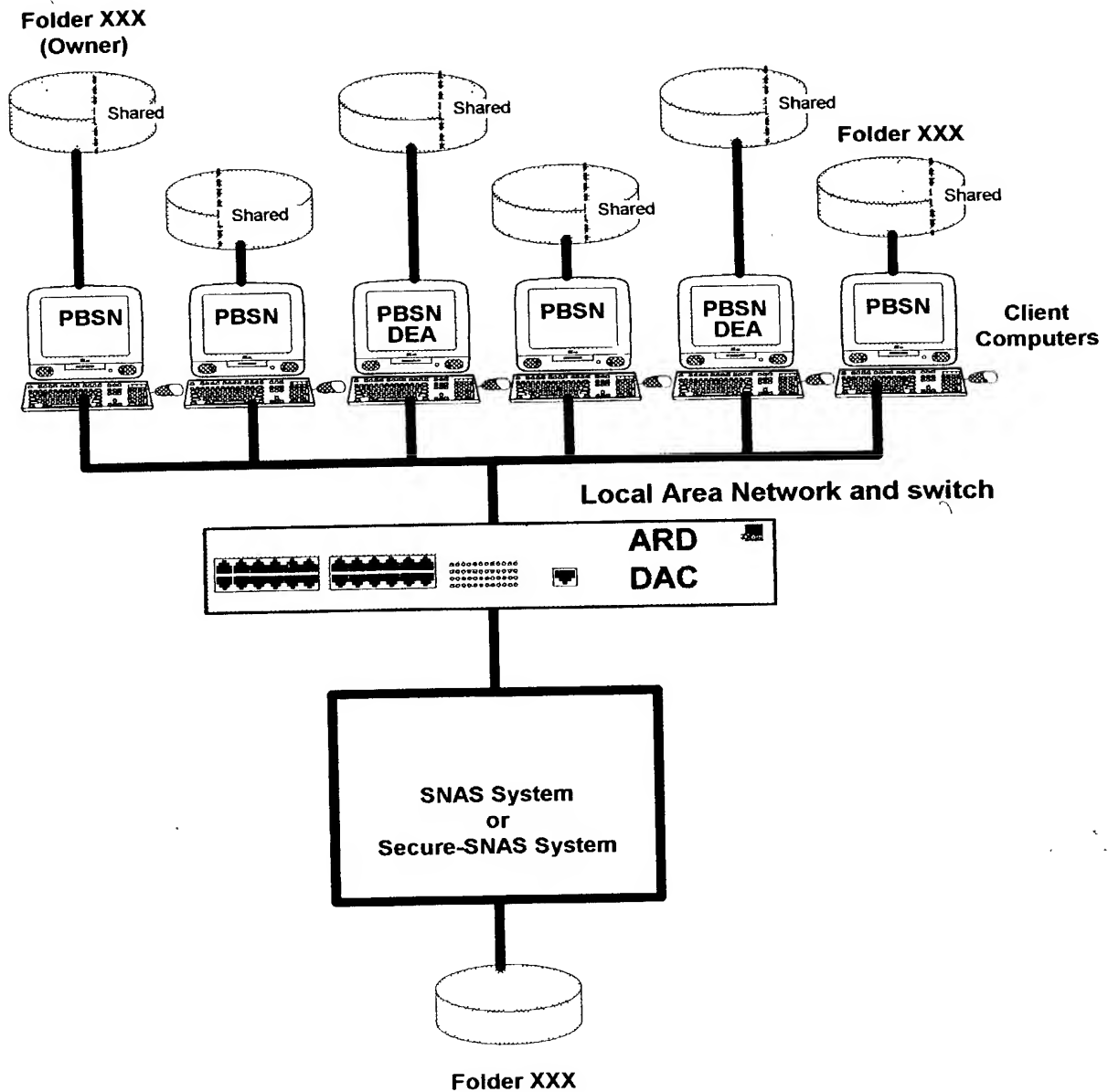


Figure 16: An Alternative Construction with DAC and ARD Functions in Network Switch